

REMARKS:

Status of claims and amendments

Claims 1-33 are pending in the application. In the Office Action dated January 17 2007, the Examiner:

1. objected to the specification because of incorrect reference numerals in paragraphs [0054] and [0055];
2. rejected claims 5-11, 16-22, and 27-33 under 35. U.S.C 112, first paragraph, as failing to comply with the enablement requirement;
3. rejected claims 5-11, 16-22, and 27-33 under 35. U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention;
4. rejected claims 12-22 under 35. U.S.C 103(a) as being unpatentable over Breault ('892); and
5. allowed claims 1-4 and 23-26, and indicated that claims 5-11 and 27-33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st and 2nd paragraph, set forth in the Office Action.

In this amendment, the specification and claims 5-7, 11, 24, 27-29, and 33 have been amended for further clarity. Claims 11 and 33 are further amended to correct typographical errors. Claims 12-22 are canceled. A replacement Figure 1 is provided, in which the water storage unit 79 is clearly shown as a part of the humidifier 65. No new matter has been added: please see at least Fig. 1 for support for the amendments.

1. The objections to the specification

Paragraph [0054] has been amended for clarity. The Examiner asserted that the auxiliary humidifier 65 includes an exhaust gas condensing unit 67, as well as other elements. In amended paragraph [0054] the auxiliary humidifier unit includes an auxiliary humidifier 65 and an exhaust gas condensing unit 67. Amended figure 1 clearly shows that auxiliary humidifier 65 and exhaust gas condensing unit 67 are separate elements.

2. The rejections of claims 5-11, 16-22, and 27-33 under § 112, first and second paragraphs

The Examiner rejected claims 5-11, 16-22, and 27-33 as allegedly failing to comply with the enablement requirement and as allegedly being indefinite. However, referring to paragraphs [0054] to [0062], it is clear how the auxiliary humidifier functions in relation to the claimed fuel cell in claims 5-11 and 27-33.

In Fig. 1, a first condenser 69 condenses “the remaining fuel gas that has passed through the fuel gas humidifier 21”, and a second condenser 71 condenses “the remaining oxidation gas that has passed through the oxidation gas humidifier 23.” (paragraph 55, emphasis added). These condensers 69 and 71 are connected to “a radiator 75 through a coolant circulating passage 73.” (paragraph 56). A coolant pump 77 disposed in the coolant circulating passage 73 pumps coolant such that “the coolant circulates through the first and second condensers 69 and 71, the radiator 75, and the coolant circulating passage 73.” (paragraph 56). While the coolant passes through the first and second condensers 69 and 71, the water contained in the remaining fuel gas and the remaining oxidation gas is condensed (paragraph 58). Thereafter the auxiliary humidifier 65 collects and stores this water in a water storage unit 79 disposed at the auxiliary humidifier 65 (paragraph 54). The first injector 81 disposed in the fuel gas supply line 27 injects the collected water into the fuel gas in the fuel gas supply line 27, and the second injector 83 disposed in the oxidation gas supply line 29 injects the collected water into the oxidation gas in the oxidation gas supply line 29 again (paragraph 59).

This is further clarified from paragraph 0062 as following:

[0062] The control unit 25 controls operation of the first and second water injectors 81 and 83. It is preferable that the first and second water injectors 81 and 83 are controlled to operate for a predetermined time (e.g., 10 seconds) after the operation of the fuel cell system 11. Because water is not sufficiently contained in the remaining oxidation gas and the remaining fuel gas in an initial stage of the operation of the fuel cell system 11, the supplied fuel gas and oxidation gas are humidified by the auxiliary humidifier unit including auxiliary humidifier 65 in the initial state of operation of the fuel cell system 11. (emphasis added)

Therefore, it is clear how the auxiliary humidifier unit including an auxiliary humidifier humidifies the supply gas lines with water collected from the exhaust gas lines. Applicant respectfully asserts that a person of ordinary skill in the art would be able to make and use the claimed invention based on this description, and that the claims are not indefinite. Applicant respectfully requests withdrawal of the § 112, first and second paragraph rejections.